EXPRESS MAIL LABEL NO. EL563155020US

and embodiments within the scope of the present invention.

What is claimed is:

CLAIMS

1.   A method for distributing electronic mail efficiently across a network of information

5   processing units and intermediate nodes, the method on an information processing unit comprising the steps of:

receiving a mail message created by a user with a list of destinations; and

sending a single copy of the mail message across the network via intermediate nodes to addresses corresponding to the list of destinations using a reliable multicast

10   technique.

2.   The method as defined in claim 1, wherein the reliable multicast technique comprises a reliable small group multicast technique.

3.   An information processing unit for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the information processing unit comprising:

a reception unit for receiving a mail message with addresses corresponding to a list of destinations; and

a transmission unit for sending a single copy of the mail message across the network via intermediate nodes to addresses corresponding to the list of destinations using a reliable multicast technique.

4.   The information processing unit as defined in claim 3, wherein the reliable multicast technique comprises a reliable small group multicast technique.

5.   The information processing unit as defined in claim 3, wherein the transmission unit operates according to a communication protocol to process ACKs and NAKs as well as packet retransmissions.

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6.   A computer readable medium including instructions for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the computer readable medium comprising instructions for:

receiving a mail message with addresses corresponding to a list of destinations;

5   and

sending the mail message across the network via intermediate nodes to the addresses corresponding to the list of destinations using a reliable multicast technique.

7.   The computer readable medium as defined in claim 6, wherein the reliable

10   multicast technique comprises a reliable small group multicast technique.

8.   A method for distributing electronic mail across a network of information processing units and intermediate nodes, the method on an intermediate node comprising the steps of:

receiving a multicast packet;

5   determining one or more "next hops" for forwarding the packet;

replicating the packet for each "next hop"; and

forwarding one copy of the packet to each of the "next hops".

9.   The method as defined in claim 8, wherein the determining, replicating and
10   forwarding steps operate according to a Small Group Multicast scheme.

10.   The method as defined in claim 8, further comprising the step of:

repetitively executing the determining, replicating and forwarding steps for each newly received packet.

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11.   The method as defined in claim 8, further comprising the steps of:

processing ACKs and/or NAKs; and

performing packet retransmissions.

20   12.   The method as defined in claim 8, wherein the multicast packet comprises a small group multicast packet.

13.   A computer readable medium including instructions for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the computer readable medium comprising instructions for:

    receiving a packet containing address information for a list of destinations;

5   determining the "next hop" for each of those destinations; and

    replicating the packet for each "next hop".

14.   The computer readable medium as defined in claim 13, further comprising the instruction for:

10   forwarding a copy of the packet to each "next hop".

15.   The computer readable medium as defined in claim 14, further comprising the instruction for:

    repetitively executing the determining, duplicating and forwarding steps for each

15   newly received packet.

16.   The computer readable medium as defined in claim 15, further comprising the instructions for:

    processing ACKs and/or NAKs; and

20   handling packet retransmissions.

17. An intermediate node for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the intermediate node comprising:

a reception unit for receiving a packet containing address information for a list of destinations;

a determination unit for determining the "next hop" for each of the destinations; and

a copying unit for replicating the packet for each of the "next hops".

18. The intermediate node as defined in claim 17, further comprising:

a forwarding unit for forwarding a copy of the packet to each of the "next hops".

19. The intermediate node as defined in claim 18, further comprising:

a repeater unit for repetitively executing the determining, duplicating and forwarding steps for each newly received packet.

20. The intermediate node as defined in claim 19, further comprising:

an acknowledge unit for processing ACKs and/or NAKs; and

a retransmit unit for handling packet retransmissions.

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